

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2004/011840

International filing date (day/month/year)
20.10.2004

Priority date (day/month/year)
24.10.2003

International Patent Classification (IPC) or both national classification and IPC
H04L12/56, H04B7/26

Applicant
INTERNATIONAL UNIVERSITY BREMEN GMBH

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Lombardi, G

Telephone No. +49 89 2399-7633



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/011840

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-17
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-17
Industrial applicability (IA)	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations

see separate sheet

Concerning section I,
Basis of the report

- 1 The following documents are referred to in this communication:

D1: US-A1-2002/0041584

D2: US-A-6400698 B1

Concerning Section V,
Reasoned statement with regard to novelty, inventive step or industrial applicability

- 1 Document **D1** discloses, regarding **claim 1**, a communication network comprising a plurality of transmitting stations and receiving stations for transmitting and receiving signals, said transmitting stations being adapted for transmitting a data signal as a series of data packets, wherein a data packet is scheduled to be transmitted by use of an available transmission resource (see D1, page 1, left-hand column, lines 1 to 60 and page 3, left-hand column, lines 1 to 18), and said receiving stations being adapted for transmitting a reservation indicator for reception by transmitting stations, wherein a reservation indicator transmitted by a receiving station carries:
a first reservation indicator value to indicate that a data transmission resource has been reserved by said receiving station for reception of the next data packet of a data signal from a transmitting station transmitting said data signal (see D1, page 1, left-hand column, line 23 to page 1, right-hand column, line 15; page 5, left-hand column, lines 35 to 44) **or**
a second reservation indicator value to indicate that a data transmission resource has not been reserved by said receiving station for reception of the next data packet from said transmitting station **or** that the last data packet has not been received with acceptable interference from said transmitting station (see D1, page 1, right-hand column, line 39 to page 2, left-hand column, line 15; page 3, right-hand column, lines 8 to 16; page 4, left-hand column, lines 24 to 62).

The difference between D1 and claim 1 consists in that in claim 1 there is provided the additional feature that when a transmitting station receives a reservation indicator carrying a first reservation indicator value transmitted from a receiving station to which no data signal has been transmitted by said transmitting station, said transmitting station will not transmit a data packet by use of the reserved transmission resource.

It would be immediately apparent to the skilled person that the method described in D1 has the drawback that, although it prevents a transmitting station intending to communicate with a mobile station to transmit using a transmission resource wherein interference has occurred, it does not prevent other transmitting stations to start transmission using said transmission resource in the case said transmission resource was available to the first transmitting station, thus causing another source of possible interference.

Therefore, the technical problem is considered as how to reduce the interference occurring between transmissions performed by different transmitting stations re-using the same transmission resources.

In consulting the prior art in the general field of mobile communication devices, the skilled person, wishing to find a solution to overcome the above mentioned technical problem, would come across document D2 (see in particular D2, column 2, lines 32 to 46; column 3, lines 22 to 52; column 6, lines 45 to 67 and figure 3) which discloses **the principle**, in a mobile communication system, of transmitting a set of indicator values indicating to all the transmitting stations which are able to receive them, that a shared transmission resource is not available for transmission for said stations.

transmission in cell
For the skilled person, therefore, starting from the method described in document D1 and being aware both of the above technical problem and of the **principle** of the solution described in D2, it would be obvious to apply said principle to the method of document D1, in order to arrive at a method wherein the above technical problem has been overcome.

The subject-matter of claim 1, therefore, does not involve the required **inventive step** according to Article 33(3) PCT.

- 2 Furthermore the same considerations as made in paragraph 1 above regarding claim 1 are in essence also valid for **independent claims 15, 16 and 17** since **claims 15, 16 and 17** are based on the same feature combination as claim 1 in terms of claims relating to a method and to apparatuses, respectively.

The subject-matter of claims **15, 16 and 17** therefore does not involve the required inventive step according to Article 33(3) PCT.

- 3 **Dependent claims 2 to 14** do not contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to **inventive step**, for the reasons that the subject-matter of said claims is **either disclosed** in documents D1 or D2 (for **claim 2**: see D1, page 3, right column, lines 47 to 63 and claim 1; for **claim 4**: see D2, column 3, line 22 to column 4, line 28 and column 5, lines 40 to 67; for **claim 6**: see D1, page 2, left column, lines 8 to 15; for **claims 10 and 11**: see D1, claim 1 and figure 1) **or** represents simple design details which are generally known to the person skilled in the field of mobile telecommunication devices and related resources management techniques.

- 4 **Remarks concerning formal defects of the international application:**

- Contrary to the requirements of Rule 6.2 b) PCT the features cited in the independent claims are not provided with **reference signs** in parentheses to increase the intelligibility of the claims.
- the independent claim 1 refers to "a reservation indicator" on line 8 and than on line 10 it is stated "wherein **a** reservation indicator...carries"; it should be unambiguously clarified that said " a reservation indicator" on line 10 is the **same** reservation indicator of line 8 (thus stating "wherein **said** reservation indicator...carries"), as it is **already done** in the other independent claims.